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EXAMINER	
LIU, MING HUN	

ART UNIT	PAPER NUMBER
2697	4

DATE MAILED: 09/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/991,956	Applicant(s) HAM, YONG SUNG	
	Examiner Ming-Hun Liu	Art Unit 2697	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-15 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-15 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Drawings

2. The drawings are objected to because figures 9 and 12 are drawn in such a way that makes the invention incompressible. The reasons for the confusion will be discussed in the following sections. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

It is unclear as to what the applicant means when referring to: "first and second approximation in two directions perpendicular to each other within the modulated data bands to derive unregistered modulated data positioned between the modulated data"

- How are the values of the first and second approximations determined? Some possibilities are:

a. The first and second approximations are both **temporal** approximations, gray scale interpolations made based on the difference between the current frame and the previous frame. In another words, the gray scale approximations are determined using the change of pixel data from frame to frame.

b. The first and second approximations are **spatial** approximations where the gray scale values are determined using the values of gray scale values of the neighboring pixels. Specifically, the gray scale value is approximated according to the pixel value of its neighboring pixels.

c. Are the first and second approximations of the same kind, meaning are they both **temporal** or both **spatial** approximations or is first approximation **temporal** and the second approximation **spatial**, or vice versa.

d. The first and second approximations use both **spatial** and **temporal** variables in its determination. In another words, the gray scale value is approximated using the

change in pixel value from current frame and previous frame as well as the pixel value of it's neighboring pixels.

However, the specification is silent on this.

- What units are used in measuring the two directions (Refer to figure 9)? Some possibilities are:

a. Direction meaning **spatial** direction. Example: move right one pixel.

b. Direction meaning **temporal** direction. Example: current frame, fn, move down to previous frame, fn-1 and move down again to fn-2.

c. Direction meaning **chromatic** direction. Example: moving right increases the darkness and moving down decreases the hue.

However, the specification is silent on this.

- What is meant by perpendicular to each other? Some possibilities are:

a. **Geometrically** perpendicular in a **spatial** sense, where the two directions are physically 90 degrees apart spatially in a Cartesian coordinate system representing pixels in the horizontal and vertical direction.

b. **Figuratively** perpendicular in a temporal axis where horizontal means progression in the current frame, fn, and vertical means progression in the previous frame, fn-1.

c. **Geometrically** perpendicular in a **chromatic** array axis here horizontal means a certain color characteristic (i.e. brightness) and vertical means another color characteristic (i.e. hue).

However, the specification is silent on this.

- What are the modulated data bands? Some possibilities are:

a. Bands are ranges where the gray scale value of a pixel in the current frame should be approximated in.

b. Bands 'a', 'b', 'c' and 'd' are **spatial** ranges where the gray scale of the value should resemble the value of the neighboring pixels. In figure 9, the gray scale value most closely resembles pixel 'b'.

c. Bands 'a', 'b', 'c' and 'd' are **chromatic** ranges where the gray scale of the value should resemble the value of the neighboring chromatic value. In figure 9, the gray scale value most closely resembles the chromatic characteristics of 'b'.

d. Bands 'c' and 'd' are **spatial or chromatic** ranges in the previous frame fn-1. Bands 'a' and 'b' are **spatial or chromatic** ranges in the current frame fn. The first approximation is made between 'c' and 'd' in the previous frame (fn-1) then compared to the current frame (fn) in the corresponding ranges of the current frame, labeled 'a' and 'b'.

e. Bands 'c' and 'd' are **spatial or chromatic** ranges in the current frame fn. Bands 'a' and 'b' are **spatial or chromatic** ranges in the previous current frame fn-1. The first approximation is made between 'c' and 'd' in the current frame (fn) then compared to the previous frame (fn-1) in the corresponding ranges of the previous frame, labeled 'a' and 'b'.

f. Bands 'a' and 'c' are **spatial or chromatic** ranges in frame fn-1. Bands 'b' and 'd' are also **spatial or chromatic** in frame fn-1.

g. Bands 'a' and 'b' gray scale values in frame fn. Bands 'c' and 'd' are also **spatial or chromatic** in frame fn.

However, the specification is silent on this.

- What is meant by "unregistered modulated data positioned between the modulated data"? Some possibilities are :

  a. **Spatially** between the data ranges, meaning phycially between the pixels.

  b. **Chormatically** between the data ranges, meaning color characteristic are between predetermined data ranges.

  However, the specification is silent on this.

- In reference to figure 9, the figure is convoluted with conflicting labels that clouds the meaning of the invention. The following are confusing/conflicting connotations of the drawing.

  a. Are the circles pixels or ranges with the radius of the circle corresponding to the range of the determined data band? If they are pixels, how can pixel 'X ' be in between pixels?

b. Are the axes X, Y a spatial unit or Fn, fn-1 a temporal unit? If temporal, how can a band exist in both times? Example band 'a' is in both the current and the previous time frame.

c. Does progressing in the direction of an axis alter the linear distance or frame history? A question that arises is: Does progressing downward on the vertical axis denote going back in frame memory, i.e. fn, fn-1, fn-2, fn-3, etc. or down 1, 2, 3, etc. pixels? Furthermore, how can 'X' exist in between two time frames or two physical pixels?

Without explanations of all these details, one of ordinary skill in the arty would have been in burdened with undue experimentations to make and use the claimed inventions.

Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 6,452,579 to Itoh et al.: A power saving display method that utilizes the differences between frames to adjust gray scale values.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ming-Hun Liu whose telephone number is 703-305-8488. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on 703-305-3885. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Ming-Hun Liu